

CORRELATION OF MAP UNITS

Tgb	Oligocene(?) Eocene(?), or Paleocene(?)	L G		Qu	Holocene	QUATERNARY
		Tg		Tgc	Oligocene	TERTIARY
		Tgc				
		Tgh		Ecene	TERTIARY	
		Tos Tog Top Tod Togs Tops Tgb		Lower Eocene(?) and Paleocene	CRETACEOUS	
		Kv Kvs Kvp Kvd Kvt Kvg Kvu		Upper Cretaceous	CRETACEOUS	
		Kjm		Cretaceous and(or) Upper Jurassic	CRETACEOUS AND (OR) JURASSIC	

DESCRIPTION OF MAP UNITS

- L LAKE
G GLACIER
Qu UNCONSOLIDATED SEDIMENTARY DEPOSITS, UNDIVIDED (HOLOCENE)
Tg GRANITE AND GRANODIORITE (OLIGOCENE)--Unfoliated granite and granodiorite
Tgc GRANITE (EOCENE?)--Muscovite-bearing granite of Cedar Bay area
Tgb GABBRO (OLIGOCENE?, EOCENE?, OR PALEOCENE?)--Olivine-bearing plutonic rocks
Tgh GRANITE OF HARDING ICEFIELD REGION (EOCENE?)--Foliated granite
Tos ORCA GROUP (LOWER EOCENE? AND PALEOCENE)
Tog Sedimentary rocks, undivided--Flysch of sandstone and siltstone
Top Greenstone, undivided--Basaltic rocks not distinguished as to pillows, dikes, or tuffs
Tod Pillow basalt--Submarine extrusive basalt
Togb Sheeted basalt dikes--Sequence composed almost wholly of dikes
Togs Greenstone and sedimentary rocks--Basalt sills and dikes intruding flysch
Tops Pillow basalt and sedimentary rocks--Interbedded pillow basalt and flysch
Togb Gabbro--Small plutons and locally coarse-grained dikes
VALDEZ GROUP (UPPER CRETACEOUS)
Kv Sedimentary rocks, undivided--Flysch of sandstone and siltstone, in part metamorphosed to slate and phyllite
Kvs Schist--Sandstone, siltstone, and some tuffs metamorphosed to biotite grade of greenschist facies
Kvp Pillow basalt--Submarine extrusive basalt
Kvd Sheeted basalt dikes--Sequence composed almost wholly of dikes
Kvt Tuff--Aquagene tuff interbedded with flysch
Kvg Gabbro--Large pluton that intrudes sheeted dikes and flysch
Kvu Ultramafic rocks--Small tabular bodies of serpentinized dunite
Kjm McHUGH COMPLEX (CRETACEOUS AND/OR UPPER JURASSIC)--Weakly metamorphosed clastic and volcanic rocks; in large part is a melange
CONTACT--Dashed where approximately located; dotted where concealed
HIGH-ANGLE FAULT--Dotted where concealed
THRUST FAULT--Dotted where concealed. Sawteeth on upper plate

Reconnaissance geochemical and mineralogical sampling was done in the Seward and Byling Sound quadrangles during 1975 and 1976 as part of the Alaska Mineral Resource Assessment Program (AMRAP). These maps show the distribution and abundance of gold in stream sediments and of gold and silver in heavy-mineral concentrates.

Stream-sediment and heavy-mineral concentrate samples were collected from active stream channels and locally, from the interface of streambeds and intermediate- to low-tide beaches. Most of the stream sediment is fine- to coarse-grained sand, with a clay-silt fraction in streams discharging from glaciers. Stream sediments were air dried, sieved, and the minus-80 mesh (0.2 mm) fraction was used for analysis. A split of each sample was analyzed for gold by a 10 gram atomic-absorption method (Ward and others, 1969). Another split was analyzed for 16 elements by a semiquantitative spectrographic method (Grimes and Marranzino, 1968).

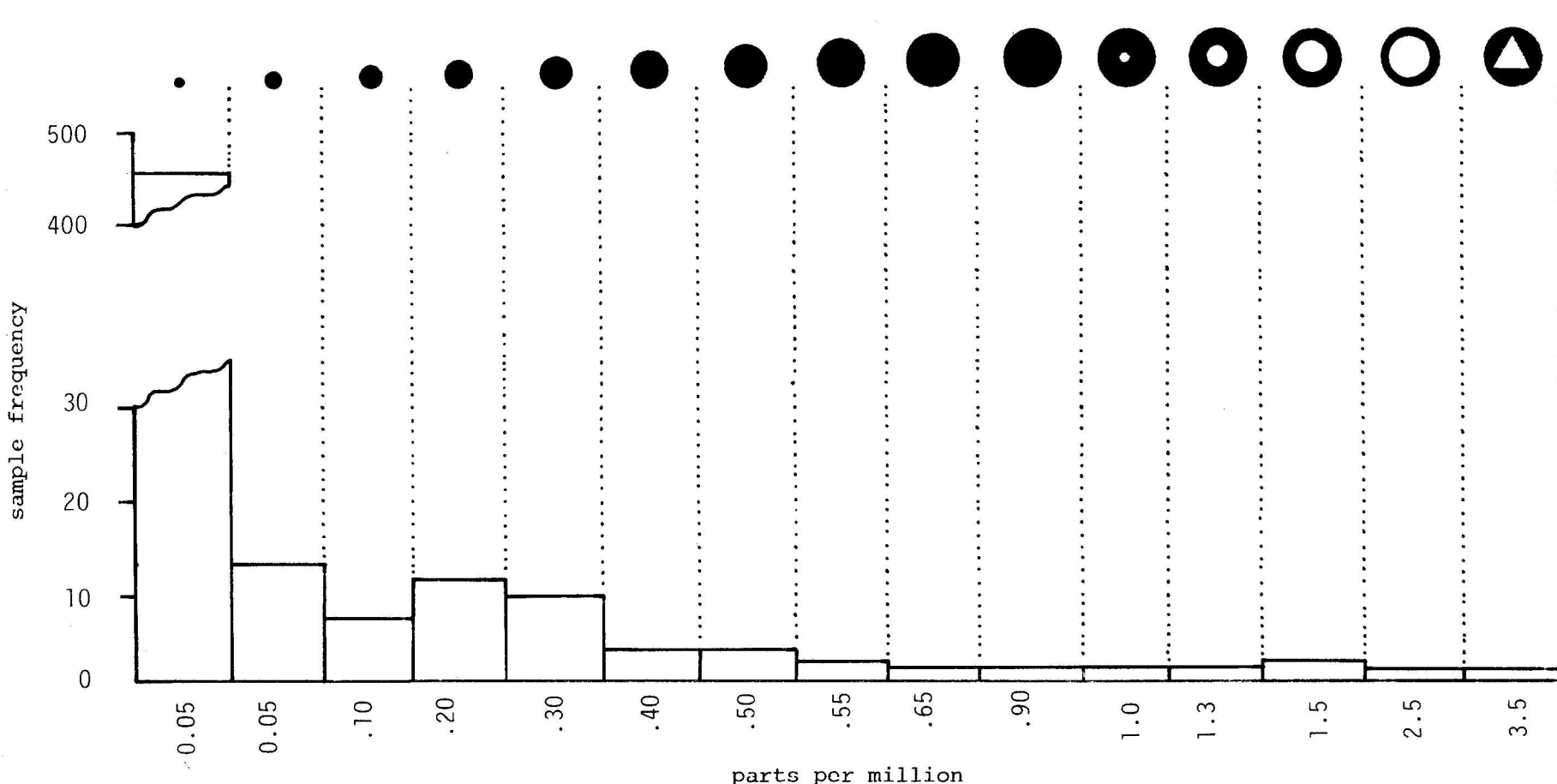
The heavy-mineral concentrates were obtained by panning stream sediments in the field to remove most of the light minerals. The panned samples were sieved through a 20-mesh (0.8 mm) screen in the laboratory, and the minus-20 mesh fraction was further separated with bromoform (specific gravity: 2.86) to remove any remaining light-mineral grains. Magnetite and other strongly magnetic heavy minerals were removed from the heavy-mineral fraction by use of a hand magnet. The remaining sample was passed through a Frantz Isodynamic Separator¹ and a nonmagnetic fraction was obtained at a setting of 0.6 amperes. A split of this fraction was pulverized and analyzed for 16 elements including gold and silver by the semiquantitative spectrographic method used for analyzing the stream sediment. The remaining split of the nonmagnetic fraction was examined for its mineralogical composition using a binocular microscope and X-ray diffraction. The nonmagnetic concentrates primarily contain muscovite, sphene, zircon, apatite, rutile, and anatase. Ore minerals such as gold, scheelite, niobium, and most sulfides are also found in this fraction.

Sample sites and gold and silver values (in parts per million) are indicated by symbols as defined in the histogram. The maps show two populations for gold in stream sediments and for gold and silver heavy-mineral concentrates. One population consists of generally higher gold and silver values found in samples collected in the sedimentary terrane in the western half of the area. The other population consists of generally lower gold and silver values found in samples collected in areas of sheeted basalt dikes, pillow basalt, and sedimentary terrane in the eastern half of the area. The anomalous silver values found on Knight Island and Latouche Island are associated with chalcopryite- and pyrite-bearing rocks.

¹The use of trade names is for descriptive purposes only and does not constitute endorsement of those products by the U.S. Geological Survey.

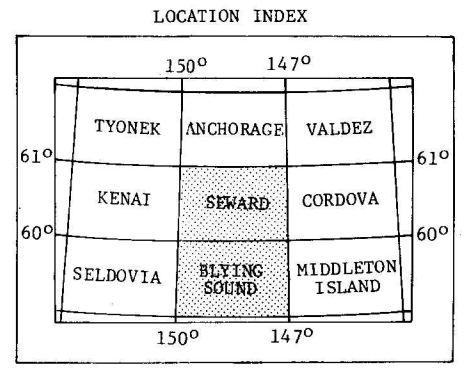
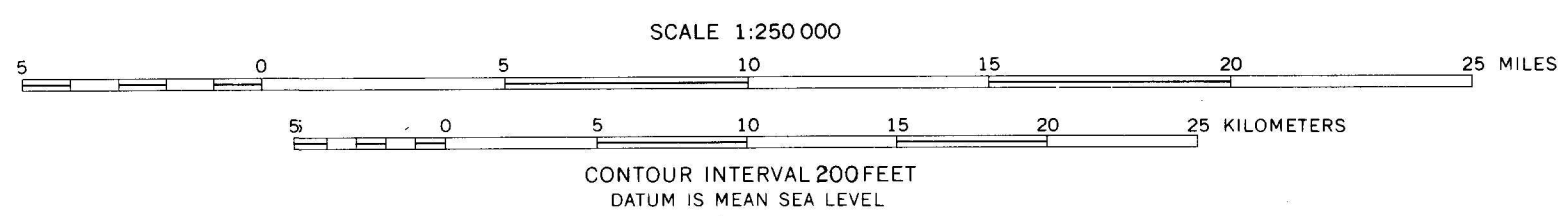
References Cited

- Grimes, D. J., and Marranzino, A. P., 1968, Direct-current arc and alternating-current spark emission spectrographic field methods for the semiquantitative analysis of geologic materials: U.S. Geological Survey Circular 591, 6 p.
Ward, F. N., Nakagawa, H. M., Harns, T. F., and Van Sickle, G. H., 1969, Atomic absorption methods of analysis useful in geochemical exploration: U.S. Geological Survey Bulletin 1289, 45 p.



Histogram for gold in 530 stream-sediment samples, showing symbols corresponding to concentrations in parts per million.

Geology mapped by R. G. Tyndal and J. R. Case, 1975-77; geochemistry by R. B. Tripp, W. D. Crim, and R. M. O'Leary, 1975-76.



GEOCHEMICAL MAPS SHOWING THE DISTRIBUTION AND ABUNDANCE OF GOLD IN STREAM SEDIMENTS AND OF GOLD AND SILVER IN HEAVY-MINERAL CONCENTRATES IN THE SEWARD AND BYLING SOUND QUADRANGLES, ALASKA

By
R. B. Tripp, W. D. Crim, and R. M. O'Leary
1978

This map is one of a series, all bearing the number MF-880. Background information relating to this map is published as U.S. Geological Survey Circular 760, available free of charge from the U.S. Geological Survey, Reston, VA. 22092

INTERIOR--GEOLOGICAL SURVEY, RESTON, VIRGINIA--1978
For sale by Branch of Distribution, U.S. Geological Survey,
Box 3586, Federal Center, Denver, CO 80268